

## &gt;NEWS FROM ATAPUERCA IN ENGLISH



## &gt;PALAEOMAGNETISM SETS DATING FOR ELEPHANT PIT AT OVER A MILLION YEARS

## &gt;Elephant Pit is one of the oldest occupied caves in Eurasia

>Geologists Parés, Pérez González and Benito, in collaboration with other members of our research Team, publish new datings for the Elephant Pit. The prestigious British Journal of Human Evolution devotes a number of pages to their palaeomagnetic study of the site, and confirms the ancient formation of the bottom strata, deposited more than a million years ago. Elephant Pit is thus confirmed as the oldest site in the Atapuerca Hills complex.

>Elephant Pit was occupied before Gran Dolina. Dr. Parés has described the complete sequence of the Elephant site using a manual drill fitted with a tube to collect sediment, as well as a compass and a clinometer to always reference the north and the inclination. The equipment and the working method are similar to the ones used at the Gallery and Gran Dolina sites in the 1990's, when the directions of the residual magnetization in the sediments were collected in a large number of specimens. They show that the Elephant cave opened up when the Earth's magnetic polarity was inverted, i.e., the magnetic minerals in clay had a south-facing alignment. The same was the cause for the first levels that were deposited there.

In contrast, a few metres further up, the magnetization changes and all the upper strata, which contain stone and bone remains from the Acheulian and Middle Palaeolithic periods, contain minerals aligned towards the present-day magnetic north. Elephant Pit is one of the very few European sites that contains artefacts from the Olduvian as well as the Acheulian and Mousterian periods.

The base levels in the Elephant Pit are thus, without a shadow of doubt, more than 780,000 years old, which was when the last major change of polarity in the Earth. They also contain small vertebrates that vanished a million years ago, leaving no room for doubt that these strata were formed beforehand. The experts in magnetism and biology coincide in situating the deepest strata in the period known by geochronologists as Lower Matuyama, a magnetic reversal event that happened in the Earth between 1,070,000 and 1,770,000 years ago.

The mammals discovered in the Elephant Pit, identified by Juan Rofes and Gloria Cuenca, prove the presence of small mice, beavers or shrews, indicating a warm, moist climate with abundant watercourses. The Zaragoza University scientists believe that these vertebrates are older than the ones they personally documented at the nearby Gran Dolina site.

The age of the Elephant Pit base level is also important to per-

# A selection of highlights from the previous issue

mit dating for the stone tools found there in recent years. Under the coordination of Rosa Huguet and Antonio Rosas, the lowest levels have yielded twenty-odd pieces of flint and limestone as well as bones from large mammals bearing cut marks from stone knives, proving the presence of human groups since the time when the cave opened.

>Possible route via Gibraltar. Elephant Pit is thus one of the oldest archaeological sites in Europe, together with Barranco León and Fuente Nueva 3 in Guadix-Baza County (Granada). With members of the Atapuerca team working on these sites in Andalusia, a joint study may well begin shortly to elucidate the way and the time that this part of southern Europe was populated. Many specialists find it striking that the oldest evidence of Europe's colonization has been found in the Caucasus (Dmanisi) and Iberia, making it necessary to debate whether, in addition to the Levantine corridor (Palestine), the Gibraltar Strait played some sort of a role in the early departure of hominids from their African cradle. Most geologists, however, think that the Gibraltar route was extremely difficult due to the deep waters and the strong currents. Moreover, the technology that these hominids possessed was not well adapted to the marine environment.

## &gt;Human bones from of Atapuerca on display at the Museum of Natural History, London

Replicas of the 800,000 year old Homo antecessor remains from Gran Dolina and Atapuerca skull number 5, a Homo heidelbergensis individual almost 400,000 years old, have been added, along with one of the skulls from Dmanisi (Georgia) to the permanent collection on display in the central corridor of the Natural History Museum. This is the most prestigious Human Evolution museum in the UK, and indeed one of the most widely respected in the world, with more than three million visitors a year.

## &gt;IBEAS, PRESENT AND FUTURE

>José Rafael García Ibeas  
Culture Councillor: Ibeas de Juarros Town Council



## Ibeas de Juarros

Ibeas de Juarros is known around the world as the municipality that hosts a large part of the Atapuerca sites on its mountainsides and peaks. That is why we must not miss the train of progress and research. To make sure, the Ibeas Town Council has pushed strongly for this line of progress with the donation of

who had to work so hard under such precarious conditions, with such meagre financial resources but with all the affection and backing of the local people, all living, drinking, eating and toiling shoulder to shoulder to make the greatest dreams come true.

The massive dissemination of the sites and their environs were made possible thanks to all this ef-

dards befitting our world-wide fame. We have to ensure that our municipality, which has grown so fast in inhabitants, can grow equally in its interests and concerns. Our new citizens should learn about our roots, ours origins, our geographic situation which, like it or not, have shaped our idiosyncrasies. Our town's development is largely due to the location of the sites, so we should always bear in mind that we live at the foot of the Atapuerca Hills.

We now take it for granted that our town is and will continue to receive multitudes of visitors, that it has to be up to the standards expected of us (restaurants, hotels, rural accommodation, shops, repair workshops and a long list of other things), that it has to become a new town that is open to the outside world. Ibeas has always been noted for its hospitality, as all those who came here first will remember, and there is no reason to think that we will change with the new settlers.

Above all, we have to ensure that we have the appropriate infrastructure for the real needs of the new population. We must not forget that a large complex (a leisure park) is going to be built between Ibeas and Arlanzón, which will bring wealth to all. A treatment plant is essential; things cannot go on the way they are now: we cannot keep on growing. The National Highway 120 cannot continue to feed 7,000 vehicles a day through the centre of our town. We can't wait any longer the traditional, "Don't worry, it's bound to come some time" attitude is no longer valid.

Three companies, Schola, Didáctica Activa, and Paleorama, have begun a new period in the story of more than 10 years' work on education and interpretation of our heritage. They have joined forces to tackle a new challenge, the management of tours and dissemination activities at the Sites in the Atapuerca Hills.

## EIA ACTIVITIES

>Juan Luis Arsuaga. A team led by one of the Atapuerca co-directors, Juan Luis Arsuaga, has discovered two new examples of cave art. One is in a small cave, and shows a single deer, while the other has 15 deer of different sizes etched with flint. The figures were produced in the Upper Palaeolithic period known as Gravettian. They are clustered and superimposed in a small cave 150 metres away from the famous Cueva del Conde site (Santo Adriano, Asturias). Arsuaga's team came back to dig here after beginning in 2001 with a prospecting campaign in the Trubia River valley, where they discovered various above-ground sites containing stone industry. These art discoveries will help to improve our understanding of the Homo sapiens who lived in this area near the Nalón River valley, but they will also provide more impetus for the scientific project and the county's archaeological park.

>Alfonso Benito. Member of the Atapuerca Research team, who recently read his PhD thesis, Geomorphological analysis and reconstruction of neogenic and quaternary paleolandscapes in the Atapuerca Hills and the middle valley of the Arlanzón River. He was awarded the María Jesús Ibañez Prize for the best PhD thesis on Geomorphology and the Quaternary in Spain. This prestigious prize is awarded once every three years by AEQUA (Spanish Association for the study of the Quaternary) and the University of Zaragoza. On this occasion it was given to our companion Benito, who works at the Complutense University in Madrid and is currently on a post-doctoral scholarship in Modena (Italy).

## &gt;Atapuerca Foundation's Communication Department will bring information about Atapuerca closer to citizens.

The Department will attend to the media, act as a link for editorial boards and other institutions that want information about the project, set up contacts with the ART members and supply graphics of the excavations and bones. It will also respond to queries sent in by phone and e-mail via a new special-purpose mailbox: informacion@fundacionatapuerca.es

## &gt;Foundation growing every year to supply the Atapuerca Project with the necessary resources.

The last Atapuerca Foundation Board meeting ratified the annual budget of 932,760.33, a 7.21% increase over 2005 (62,000 more).

The largest item is Research support (234,967.88). 18 research grants will be awarded under the Atapuerca Chair of the Atapuerca and Duques de Soria Foundations. The budget contains another particularly relevant aspect: the fact that 70% of the Foundation's budget is supplied by pri-

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### THE FIRST HUMANS NORTH OF THE ALPS

Chris Stringer

>The discovery of a human shinbone at Boxgrove in 1993 really hit the headlines. The bone, and two teeth found in 1995, were attributed to the species *Homo heidelbergensis* (...). Until recently, the species was believed to represent Europe's oldest inhabitants, from about half a million years ago. Now fossil discoveries from Spain and Italy have pushed back the earliest human presence in southern Europe to at least 800,000 years ago, with some archaeologists arguing for stone tools even older. Finds from the Caucasus, at the gateway to Europe, hint at the possibility of a still

earlier presence. (...) If people were in the Caucasus over 1.5m years ago, could they have moved westwards then? The European evidence is not clear until later than this, but I think we should keep an open mind on the question.

At Orce, southern Spain, some archaeologists believe they can date undoubted stone tools as far back as 1.5m years, but this remains highly controversial (...). From a similar age, but with better dating, a locality called Gran Dolina at Atapuerca, northern Spain has produced tools and fragmentary fossils of several adults

and children. The remains include part of the face of a child, two lower jaws, teeth and limb bones, many showing cut marks from stone tools (evidence of cannibalism?). The Spanish team named a new species *Homo antecessor* (*Pioneer Man*) for the remains (...).

The stone tools from Pakefield are by far the oldest evidence we have for people in Europe north of the Alps (...). Well, the similarities of environment between Britain and northern Spain at that time suggest they could have been the same species as found at Gran Dolina.

bergensis individual almost 400,000 years old, have been added, along with one of the skulls from Dmanisi (Georgia) to the permanent collection on display in the central corridor of the Natural History Museum. This is the most prestigious Human Evolution museum in the UK, and indeed one of the most widely respected in the world, with more than three million visitors a year.

Back in those days with Emilio Aguirre, the current co-directors, Eudald Carbonell, Juan Luis Arsuaga, José María Bermúdez de Castro, and many others

more than 90,000m<sup>2</sup> to the Castilla y León Regional Government near the excavation sites to build a reception centre.

Ibeas cannot afford not to look back, even if it is just to remember the vicissitudes and problems of the distant early days, when very few believed in the possibility of positive results.

Back in those days with Emilio Aguirre, the current co-directors, Eudald Carbonell, Juan Luis Arsuaga, José María Bermúdez de Castro, and many others

fort. Our town stepped slightly to one side at that point, a logical, positive step with a clear signal that something of such great importance belongs to everyone - it is the heritage of Ibeas, of Atapuerca but indeed also of all humanity.

All of this has made our main concern focus on enhancing the project as much as possible, and not just via the Museum of Human Evolution. Infrastructure has to be installed in the vicinity to bring the various entrances around our Hills up to the stan-

Now is our great chance to do those little things that have big outcomes. This is the time for government bodies and social agents; a time for them to show the same spirit as the locals - to support the scientific work, but also to support the development of our town. Because otherwise, science alone will leave the plan incomplete. And Ibeas will go on being a village close to Burgos but embedded far away in history.

>Schola-Paleorama managing guided tours of the sites